1. Functional group

2. From Wikipedia, the free encyclopedia

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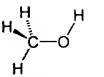
For other uses, see Functional group (disambiguation).

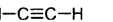
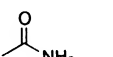
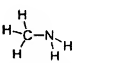
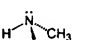
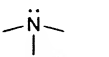
In organic chemistry, **functional groups** are specific groups of atoms within molecules, that are responsible for the characteristic chemical reactions of those molecules. The same functional group will undergo the same or similar chemical reaction(s) regardless of the size of the molecule it is a part of.

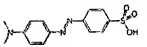
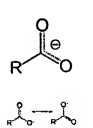
The following is a list of common functional groups. In the formulas, the symbols R and R' usually denotes an attached hydrogen, or a hydrocarbon side chain of any length, but may sometimes refer to any group of atoms. Below is an image of multiple functional groups found in organic chemistry.

(For convenience, the basic functional groups covered in General Biology are also listed here)

Chemical class	Group	Formula	Graphical Formula	Prefix	Suffix	Example
Acyl halide	Haloformyl	RCOX		haloformyl-	-oyl halide	 Acetyl chloride *(Ethanoyl chloride)*

Alcohol	Hydroxyl	ROH		hydroxy-	-ol	 Methanol
Aldehyde	Aldehyde	RCHO		oxo-	-al	 Acetaldehyde *(Ethanal)*
Alkane	Alkyl	RH		alkyl-	-ane	 Methane
Alkene	Alkenyl	$R_2C=CR_2$		alkenyl-	-ene	 Ethylene *(Ethene)*

Alkyne	Alkynyl	RC≡CR'		alkynyl-	-yne	 Acetylene *(Ethyne)*
Amide	Carboxamide	$RCONR_2$		carboxamido-	-amide	 Acetamide *(Ethanamide)*
Amines	Primary amine	RNH_2		amino-	-amine	 Methylamine *(Methanamine)*
	Secondary amine	R_2NH		amino-	-amine	 Dimethylamine
	Tertiary amine	R_3N		amino-	-amine	 Trimethylamine

	4° ammonium ion	R_4N^+		ammonio-	-ammonium	 Choline
Azo compound	Azo (Diimide)	RN_2R'		azo-	-diazene	 Methyl orange
Toluene derivative	Benzyl	$RCH_2C_6H_5$ RBn		benzyl-	1-(*substituent*)toluene	 Benzyl bromide *(1-Bromotoluene)*
Carbonate	Carbonate ester	ROCOOR			alkyl **carbonate**	
Carboxylate	Carboxylate	$RCOO^-$		carboxy-	-oate	 Sodium acetate *(Sodium ethanoate)*

Carboxylic acid	Carboxyl	RCOOH		carboxy-	-oic acid	 Acetic acid *(Ethanoic acid)*
Cyanates	Cyanate	ROCN		cyanato-	alkyl **cyanate**	
	Thiocyanate	RSCN		thiocyanato-	alkyl **thiocyanate**	
Ether	Ether	ROR'		alkoxy-	alkyl alkyl **ether**	Diethyl ether *(Ethoxyethane)*
Ester	Ester	RCOOR'			-oate	 Ethyl butyrate *(Ethyl butanoate)*
Haloalkane	Halo	RX		halo-	alkyl **halide**	 Chloroethane *(Ethyl chloride)*
Hydroperoxide	Hydroperoxy	ROOH		hydroperoxy-	alkyl **hydroperoxide**	 Methyl ethyl ketone peroxide
Imine	Primary ketimine	RC(=NH)R'		imino-	-imine	

	Secondary ketimine	RC(=NR)*R'*		imino-	-imine	
	Primary aldimine	RC(=NH)H		imino-	-imine	
	Secondary aldimine	RC(=NR')H		imino-	-imine	
Isocyanide	Isocyanide	RNC		isocyano-	alkyl **isocyanide**	
Isocyanates	Isocyanate	RNCO		isocyanato-	alkyl **isocyanate**	
	Isothiocyanate	RNCS		isothiocyanato-	alkyl **isothiocyanate**	Allyl isothiocyanate
Ketone	Ketone	RCOR'		keto-, oxo-	-one	 Methyl ethyl ketone *(Butanone)*
Nitrile	Nitrile	RCN		cyano-	alkane**nitrile** alkyl **cyanide**	 Benzonitrile *(Phenyl cyanide)*